

CLEAN SET OF PENDING CLAIMS

What is claimed is:

1. An orthotic apparatus for reducing arthrokinetic dysfunction after determining tracking problems after examining the patient comprising:

a jointed limb brace having a first section, a second section, and a brace joint means;

means for connecting said first section and second section to the patient whereby the first section may be connected to a portion of a limb of a person on one side of a joint of the limb and the second section to a portion of a limb of a person on the opposite side of the joint of the limb;

friction means for varying the resistance to movement of the first and second sections with respect to each other;

said friction means being connected to said first and second sections adjacent to said brace joint means; and

means for adjusting the resistance in the friction means wherein the friction means provides a preadjusted resistance to motion independent of the velocity of the motion in a pattern to provide proper tracking.

2. Orthotic apparatus according to claim 1 in which said friction means includes first and second friction members and the means for adjusting includes control means having a program; said program controlling pressure between said first and second friction members.

3. Orthotic apparatus according to claim 2 in which the pressure between said first and second friction members is controlled magnetically.

4. Orthotic apparatus according to claim 2 in which the pressure between said first and second friction members is controlled by a motor-driven screw drive means.

5. Orthotic apparatus according to claim 3 wherein the first section is sized and constructed to be connected to one of a leg and thigh and the second section is sized and constructed to be connected to the other of a leg and thigh.

6. Orthotic apparatus according to claim 3 wherein the first section is sized and constructed to be connected to one of a forearm and arm and the second section is sized and constructed to be connected to the other of a forearm and arm.

7. Orthotic apparatus according to claim 3 in which said friction means is removeably attached to said first and second sections over said brace joint means.

8. Orthotic apparatus in accordance with claim 3 in which the first and second friction members are flat surfaces.

9. Orthotic apparatus in accordance with claim 3 in which the first and second friction members are curved surfaces.

10. Orthotic apparatus in accordance with claim 4 in which the first and second friction members are flat surfaces.

11. Orthotic apparatus in accordance with claim 4 in which the first and second friction members are curved members.

12. Orthotic apparatus in accordance with claim 2 in which said program creates greater friction by pressing the friction members together more tightly when the limbs are being moved in a direction aided by weakened muscles, whereby weakened muscles are given greater support than stronger muscles.

13. A method of reducing arthrokinetic dysfunction after determining tracking problems by examining the patient comprising the steps of:

measuring the tracking of a limb while it is moved about a joint;

creating resistance to movement of the limb about the joint using an external resistance that is independent in resisting force of the velocity of movement of the limb;

controlling the resistance so as to cause proper tracking.

14. A method in accordance with claim 13 in which the step of controlling the resistance includes the step of adjusting the resistance until tracking is proper.

15. A method in accordance with claim 14 in which the resistance is adjusted until a patient with arthrokinetic dysfunction can move the limb without pain.

16. A method in accordance with claim 15 in which the resistance is adjusted under the control of a microprocessor.

17. A method in accordance with claim 16 in which the microprocessor controls the pressure between frictional surfaces that move with the limb about the joint by controlling magnetic attraction forcing the surfaces together.

18. A method in accordance with claim 16 in which the microprocessor controls the pressure between frictional surfaces that move with respect to each other in accordance with the motion of the limbs about the joint by controlling a motor driven screw that tightens and loosens the surfaces under the control of the microprocessor.

19. A method in accordance with claim 18 in which the step of creating resistance comprises the steps of creating resistance that resists motion by a weakened muscle to a greater extent than to a normal muscle, whereby support is provided to the weakened muscle.

20. A method of aiding a person in physical activity, wherein the person has weakened or damaged muscle, comprising the steps of:

providing resistance to movement in the direction of natural forces, wherein the natural forces are offset;

the step of applying resistance comprising the step of applying a resistance which

varies in magnitude in accordance with a program, in which said resistance is independent of velocity of movement.

21. A method in accordance with claim 21 in which the program is within a microprocessor.

22. A method in accordance with claim 20 in which the resistance is controlled by electrical forces.

23. A method in accordance with claim 22 in which the electrical forces are applied by electromagnets forcing frictional surfaces together.

24. A method in accordance with claim 23 in which the electrical forces are applied by an electric motor turning a screw means to pull the frictional surfaces together.